

### **Abstract**

1           A method for roughening a surface of an ion exchange system structure using  
2 laser interaction with a surface. The laser surface roughening process allows the use of a  
3 wide range of substrates such as metals, ceramics, silicates, polymers and the like,  
4 including varieties which can not be fabricated in a fine fibrous structure. The surface  
5 roughened ion exchange system structure may be used as an ion-exchange media in  
6 applications such as fuel cells, batteries, and other catalysis systems where a high surface  
7 exchange area is desirable.

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